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ABSTRACT

In fall 1995, Vincennes University, a two-year college in Indiana, began offering an "Introduction to Business" course to personnel at a manufacturing company located approximately 5 hours from the college. In spring 1996, the same course was also delivered to a high school located over 2 hours from the college. The course was delivered via two-way compressed audio/video technology over existing ISDN telephone lines, allowing the instructor to control all equipment, including local and distant cameras, and allowing students to see each other via television monitors. Costs for developing such a course can range from $25,000 to $100,000 for hardware and monitors, while telephone line charges currently run $25 per hour. Both the employees and high school students adapted well to the format, outperforming a control group of traditional college freshman with respect to grades. Problems experienced with the technology included occasional improper connections and the need for a local proctor during testing. Before establishing distance courses, department chairs must ensure that faculty receive training with the appropriate technical people. Other issues to consider include ensuring that the design of the local classroom facilitates the interface to the equipment and that sound instructional methodologies are used. Finally, faculty concerns related to the perceived threat to their positions on campus and ownership of courses once they leave the local classroom should also be addressed. (HAA)

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ED 407 020

REACH OUT AND TOUCH SOMEONE:

UTILIZING TWO-WAY INTERACTIVE AUDIO VIDEO FOR DISTANT AUDIENCES

By

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Presenter Biography

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Chairman, Department of Management and Accounting (since 1992)
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Consulting Interests:

Statistical Process Control; Management Information Systems

With increasing concerns about enrollment management and breaking down the traditional walls of higher education, post-secondary institutions are actively pursuing distant education opportunities. The paper briefly describes one such attempt to expand the walls of Vincennes University.

Prior to the start of the Fall semester 1995, the Business Division of Vincennes University (a two year comprehensive community college) was approached by a manufacturing company in Elkhart, Indiana (more than five hours away) to deliver college courses to their personnel. Also, prior to the start of the Spring semester 1996, a distant high school inquired into the availability of a business class for dual (high school/college) credit. With the significant distance between the two sites, alternative methods of delivery had to be considered.

Utilizing a compressed video technology using ISDN telephone lines, the course was delivered directly to the conference room of the manufacturing facility and to the media center at the distant high school.

The course offered was BMM 100 Introduction to Business. This is a survey course in business required of virtually all incoming business students at Vincennes University.

In Spring semester 1996, the same course was delivered to Decatur Central High School in Indianapolis, IN (More than two hours away) for dual credit to selected seniors. The same technology was employed. This course, however, was held concurrently with a local classroom of 24 traditional college students present and the distant high school students.

The Students

The first audience was a small group of adult learners at a medium sized manufacturing facility. The students ranged in age from the early twenties to late fifties. They represented a broad spectrum of job positions from functional area middle-managers to the clerical ranks. Most of these students were interested in obtaining an Associate's degree to enhance their promotability at that specific firm. The class was conducted in the conference room (via the two-way interactive link) of the facility convening immediately following work once a week. An on-site visit/session was conducted by the instructor to complete needed classroom hours.

The second class (which was executed the very next semester) consisted of eight high school seniors who enrolled in the class for dual credit. These seniors were chosen based on their academic backgrounds (GPA of 3.25 or better), their interest in pursuing a business major upon graduation from high school, and the recommendation of their assistant principal. Most of the students had previously completed a General Business class in their freshman year. The students attended this class in a multi-media room adjacent to their library. This room was specifically outfitted for this type of instruction from a grant the school had previously received. A lab assistant was present to initiate the connection at the beginning of class, but left once class began. Classroom discipline was left totally to the distant instructor. The students were assessed tuition at a discounted rate and a local business (donor) subsidized the costs so students did not incur any out-of-pocket expense.

The Technology used in the delivery of the instruction

After investigation into the availability of different instructional pedagogies to these distant audiences (satellite, correspondence, on-sight), the technology chosen was that of two-way compressed audio/video. This technology consisted of PictureTel brand of video conferencing hardware and existing ISDN (Integrated Services Digital Network) telephone lines running at 112K BPS using high speed modems.

In essence, the instructor had the ability to both see and hear the distant class and they could see and hear the instructor. This particular brand of equipment allows the instructor to control all equipment including cameras (both locally and at the distant location), VCR's, and computer graphics from a single keypad located at the instructor's podium.

The instructor receives the students' video on a 46 inch big screen television and the students had similar monitors (although only 27 inch) at their receive sites. Additionally, the local (larger) classroom had a 27 inch monitor mounted from the ceiling to allow the local class to view the distant class. Each receive site had a designated technician available if troubles were encountered.

The hardware cost to outfit a distant education classroom depends on the design and purpose desired. At the distant manufacturing location, a portable unit was loaned to them which only includes a 27 inch monitor, camera, and PC. For a more permanent installation, a dedicated .big screen. television/monitor, ceiling microphones, additional monitors, document cameras, and PC's are appropriate.

The cost can range from $25,000 (for portables) to $100,000 for large/permanent installations. The line charges that are currently encountered are approximately $25/hour of connection time. These costs are strictly approximations and should be fully researched by anyone attempting this type of technology. Technicians were provided by our telecommunications department at an hourly rate $25/hour at the local end. No technical costs were incurred at the distant end.

To initiate a class, the local instructor simply dials a pre-set video telephone number and waits for the class to appear on the monitor. Once this occurs, an interactive class can begin.

The Students Reaction/Performance

As with any new technology, some apathy and concern was to be expected. This was the first attempt by the Business Division and the University as a whole to broadcast a class outside of its campuses.

It must be mentioned here that in the delivery of these two courses the audience composition was quite different. In the first case (to the manufacturing plant), the audience was composed of adult learners entirely. The second course delivery was to a traditionally-aged high school senior population.

Interestingly, both of these audiences adapted quite well and quickly to this technology. The acclimation to the use of the equipment was usually accomplished during the first class session. Most probably, this is due to the technological interface most all of us experience today in our daily life and activities.

The performance of both of these audiences was compared to a control group of traditional college freshman in a traditional lecture/discussion format. The results of the performance of the student in the course, based on final course grades, indicated in both deliveries performance that was greater than the traditional college population.

A statistical analysis of the data was performed to validate this observation. Descriptive statistics revealed higher average final course grades of distant students and a one-way ANOVA showed at statistically significant difference between these means of the populations.

Mean Final Grades	
Traditional Classroom	73%
Industrial Group	80%
High School Group	93%
F statistic (ANOVA)	5.85
P Value (ANOVA)	.007

This success is most likely due to the added motivation of the students to succeed as indicated by their commitment to take a class via non-traditional instructional techniques.

Pitfalls of this Technology

As with any situation that relies heavily on the use of technology, the convenience of this instructional methodology does not come without its potential problems. Occasionally, the technology might not connect properly (many times due to factors outside the control of the originator) and a contingency plan must be available to insure the continuity of instruction. Some suggested alternatives might include study guides/sessions, library research assignments relating to the material being studied, etc. The failure of a class connection should not necessarily be equated with class cancellation.

For testing purposes, the use of a local proctor is needed. Additionally, for timely grading and returning of exams/quizzes, the fax machine needed to be used often.

Without a motivated, dedicated class, an instructor would not have a great degree of classroom discipline. Again, a proctor might alleviate this potential concern.

Most importantly, the use of this technology will force an instructor to reconsider the techniques used in the traditional classroom to be more conducive to video/television reception (the old .talking head. will not suffice on the television)

The appropriateness of this technology for specific courses/ audiences

I personally believe that this technology can be employed for virtually all types of instruction. The hardware supports not only cameras, but also document cameras for the displaying of print material, VCR's for video tapes, computer interfaces for graphics/presentation packages such as Powepoint or the demonstration of the Internet.

The courses that have been delivered via this technology at Vincennes University include:

- General Psychology
- Introduction to Business
- Sociology of Relationships and Families
- Principles of Management

The psychology and sociology courses were developed to meet the general education requirement within our curriculum for students attending at one of our satellite campuses.

Vincennes University maintains an Aviation Technology Center at Indianapolis, IN (2 hours away) for students majoring in Aviation Maintenance and Aviation Flight majors.

The more technical, skill-based courses are taught by full time faculty and the general education courses are left to adjunct and main campus faculty.

The Principles of Management class was offered to the same industry-based audience (in Elkhart, IN) as the original Introduction to Business class.

Courses that are currently being developed include a Marketing class and a Mathematics class.

Administrative Concerns/Costs

As a department chairman as well as the instructor, I can offer several concerns that need to be addressed both before and during the delivery of a distant education course using this technology.

First, the development of the course and the faculty member's training must be addressed. Even though a faculty member may have taught the course several times, it does require some adaptation to be viable to the distant audience. Many models exist as to the amount of time and perhaps compensation awarded to a faculty member, but I have developed the following recommendation.

For faculty members embarking on this delivery method, a pre-launch training session with the appropriate technical person (on our campus it is the telecommunications manager).

Issues that need to be considered would include:

- Room Design-The physical arrangement of the classroom must facilitate the interface to the equipment.
- Instructional Methodologies-The use of strictly lecture is not conducive to distant audiences. It is very difficult to keep the attention of a distant audience when they only see a .talking head..
- Technological Issues-A contingency plan needs to be available if a technical difficulty arises.
- Timing Issues-Homework and quizzes cannot be picked up and distributed freely during class to a distant audience.

Then, for the faculty member to appropriately develop the course, a amount of release time be given just prior or during the delivery of the class. This accommodates any changes needed during the delivery of the class.

Additionally, administrative costs associated with the technology needs to be considered. These might include connection charges, technician charges, proctor charges (if any), or room rental (if appropriate).

Faculty Concerns

The reaction of faculty to this medium is mixed. Some faculty take the position that this could ultimately endanger their position at the local campus. Others are convinced that the way they present their lectures/materials is so unique that it could not be done in a broadcast medium. A final concern addresses the ownership of the course once it leaves the boundaries of the local classroom. All of these concerns merit some attention. It is the responsibility of the administration to reassure faculty that this is simply a .paradigm shift. from what academia is used to. Most believe that distant education strategies will ultimately strengthen and increase enrollments in the long run.

The Future

The Business Division at Vincennes University is committed to delivering additional courses through this as well as other mediums. Additionally, a second course is currently being delivered to the manufacturing facility to build upon the first business survey course through two-way interactive audio-video. An entire Associate's degree in business is currently being developed with an anticipated launch in the very near future.